NORTH DAKOTA
DEPARTMENT of HEALTH

Immunization Newsletter

Spring 2016

February ACIP Update

During its February 24th meeting, the Advisory Committee on Immunization Practices (ACIP) voted to update the 2016 – 2017 influenza vaccine recommendations, including changes to the language on immunizing egg-allergic patients. The new recommendations include the acceptable use of live attenuated influenza vaccine (LAIV; FluMist®) as an option for individuals with an egg allergy of any severity, including severe anaphylaxis. Also, the ACIP removed the requirement to observe egg-allergic patients for 30 minutes post-vaccination, noting that 15 minutes of observation is recommended for all patients receiving vaccines, particularly adolescents for syncope. The ACIP also voted to remove the algorithm that previously directed physicians in what vaccination route to take with egg-allergic patients because evidence from numerous studies supported the idea of all patients being vaccinated in the same manner.

ACIP members also were presented data on immunogenicity of the two-dose versus three-dose schedule for Merck's nine-valent HPV vaccine (HPV9; Gardasil 9®). Merck reported planning to submit data to the Food and Drug Administration (FDA) to get the two-dose schedule for Gardasil 9® approved. Even if a two-dose schedule is recommended by the ACIP in the future or approved by the FDA, it is anticipated that three doses will still be recommended for people 15 and older.

ACIP members also discussed the use of the quadrivalent meningococcal conjugate vaccine (MenACWY-D; Menactra®; Menveo®), which protects against serotypes A, C, W and Y, in HIV-infected patients. The meningococcal workgroup proposed that HIV-infected patients be included in the list of "persons at increased risk" for this vaccine, but it wasn't put to vote.

Upcoming Change in Local Public Health Unit Vaccine Supply Policy

Governor Jack Dalyrmple asked state agencies to reduce general fund spending by 4.05 percent to help cover the projected general fund revenue shortfall for the current biennium. The NDDoH's 4.05 percent general fund reduction amounts to $2,086,628. A large portion of the reduction, $1.6 million, will come from the discontinuation of the universal vaccine policy with local public health units (LPHU). The NDDoH budget currently includes a $2.9 million general fund appropriation to buy vaccines for children vaccinated at LPHUs that could be paid for by health insurance. When this policy was developed, not all LPHUs had the capability to bill insurance (systems or provider agreements), and not all insurance policies included vaccinations. All LPHUs now have the ability to bill insurance for immunizations. The new policy will become effective **July 1, 2016,** to allow LPHUs time to adjust their procedures. Starting July 1, 2016, LPHUs will have to purchase private vaccine for administration to insured children.

Summer 2016 MPH Projects

The NDDoH immunization program will be working with three Masters of Public Health students this summer on immunization-related projects. The first project is to assess the prevalence of HPV-related diseases in North Dakota. Two students will be working on a project to determine the effectiveness of the NDDoH's immunization reminder/recall activities at increasing immunization rates.

Data Loggers Expiring Soon!

As a reminder, your Fridge-Tag 2® data loggers that were given to providers in May 2014 expired on April 8, 2016, and the backup data loggers that were sent out to providers in November 2014 will be due to expire in October and November, 2016. As of January 1, 2015, data logger thermometers are required by the NDDoH Immunization Program for use in all refrigerators and freezer units storing Vaccines For Children (VFC) Program vaccine. Providers will need to purchase their own new data loggers prior to the expiration date of their current data loggers. There is an updated purchasing guide on our website: www.ndhealth.gov/Immunize/Documents/Providers/Forms/Dataloggerpurchasingguide2016.pdf.

The NDDoH does not endorse any certain data logger product. This information is only for reference to purchase a new data logger prior to the expiration of your current data logger. If you have any questions, please contact the NDDoH Immunization Program at 701-328-3386 or toll-free at 800-472 -2180.

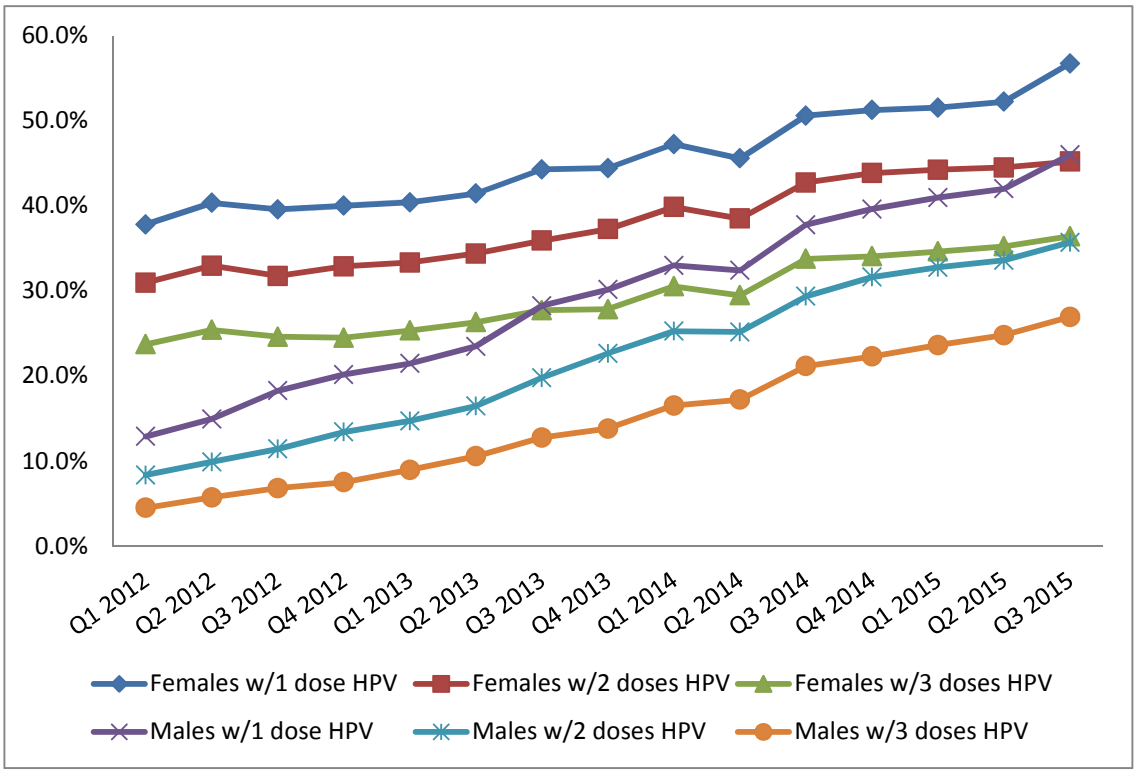
Human Papillomavirus (HPV) Vaccination Rates in North Dakota Increasing

Rates amongst American Indians Higher than Non-American Indian Adolescents

Every 20 minutes in the United States, someone is diagnosed with an HPV-related cancer. Although there is a vaccine available to prevent these cancers, HPV immunization rates in North Dakota and the United States are below rates for other adolescent vaccines, and below the Healthy People 2020 goal of 80 percent, meaning many adolescents are not protected against certain cancers.

HPV vaccination rates in North Dakota are slowly increasing. According to the North Dakota Immunization Information System (NDIIS), rates for both initiating and completing the HPV series are on the rise (Figure 1).

Fig. 1: Percent of adolescents (13 – 15 years) in North Dakota who have received the specified number of doses of HPV vaccine by the last day of the quarter (NDIIS)



According to the 2014 United States Census estimate, 5.4% of North Dakota's population is American Indian (AI), representing the second highest race in the state after White. The NDIIS shows that HPV vaccination rates for starting and completing the three-dose series are higher amongst AI female adolescents than non-AI adolescents in North Dakota (Figure 2). NDIIS also shows AI males having a higher rate of HPV vaccination than non-AI males (Figure 3).

Fig. 2: HPV vaccination rates for American Indian vs. Non-American Indian adolescent females (13-17 Year Olds) in North Dakota for quarter 3, 2015 (NDIIS)

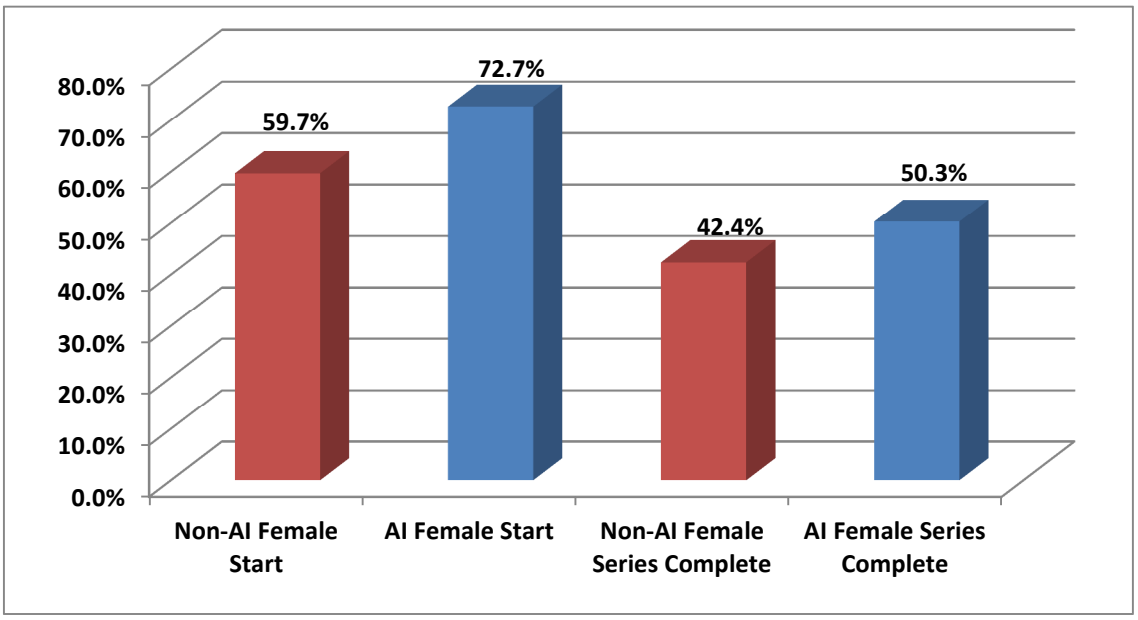
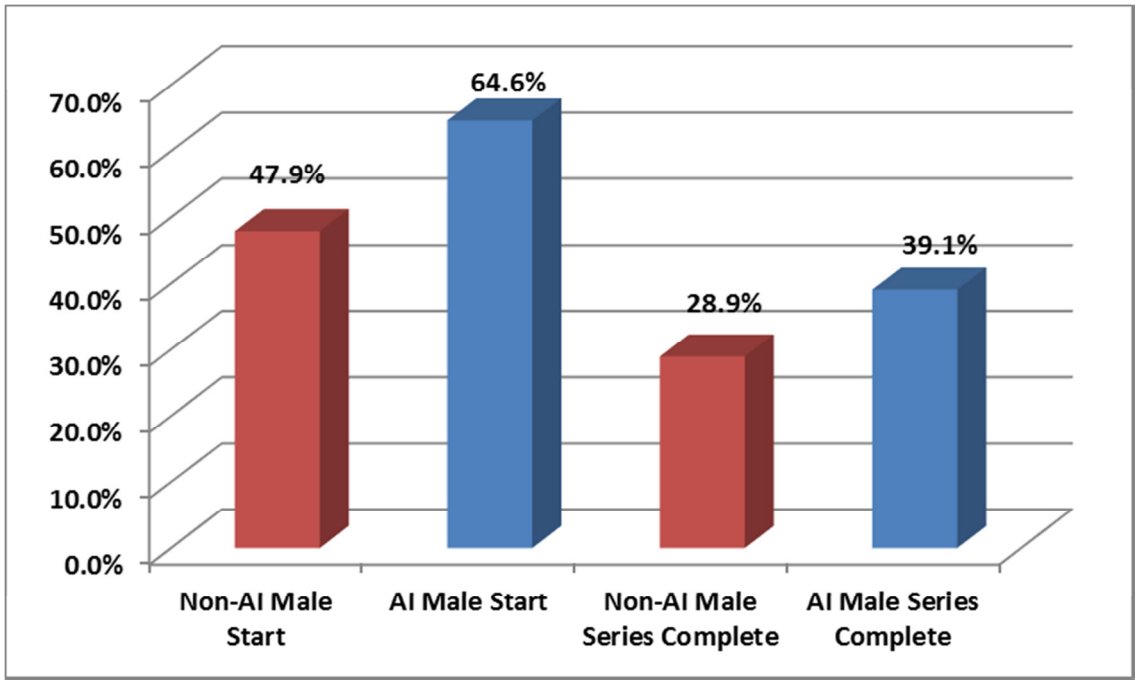


Fig. 3: HPV vaccination rates for American Indian vs. Non-American Indian adolescent males (13-17 Year Olds) in North Dakota for quarter 3 2015 (NDIIS)



North Dakota's HPV series initiation rates for the AI population are consistent with other findings nationally. According to the National Immunization Survey (NIS), minority and below-poverty adolescents consistently had higher HPV series initiation than White and above-poverty adolescents. Although HPV vaccination rates are higher in AI adolescents, rates still do not meet the Healthy People 2020 goal, and additional efforts are needed to ensure HPV vaccination of this population.

HPV vaccination is recommended for all adolescents at age 11 – 12. Catch-up vaccination is recommended at age 13 to 26 for females and 13 to 21 for males. This vaccine may be given to men 22 through 26 years of age who have not completed the three-dose series. It is recommended for men through age 26 who have sex with men or whose immune system is weakened because of HIV infection, other illness, or medications. The HPV vaccine is recommended to be administered as a three-dose series at 0, 2, and 6 months. For more information about HPV vaccine, visit www.cdc.gov/hpv/index.html.

New Immunization Surveillance Coordinator!

Hello! My name is Lexie Barber, and I joined the NDDoH Immunization Program in February as the Immunization Surveillance Coordinator. I graduated from the University of Minnesota last summer and worked briefly as the STD, HIV, and Viral Hepatitis Surveillance Coordinator for the Department before taking this position. In my free time I enjoy playing guitar, hiking, or spending time on the Lake! I am looking forward to working in the immunization program here at the NDDoH!

Upcoming 2016 North Dakota State Immunization Conference: August 3 and 4, 2016

The immunization program has been busy planning the upcoming 2016 North Dakota State Immunization Conference, which will take place on Wednesday, August 3 and Thursday, August 4, 2016. Any and all who work with immunizations are welcome to attend. Staff that should consider attending include but are not limited to: clinic administration, nurses, physicians, and pharmacists.

We are currently looking for providers to speak on innovative ways to increase immunization rates that have been implemented and successful in your clinic. If you would like to speak or have an idea for a speaker please email Abbi Berg at alberg@nd.gov. Providers who are chosen to speak at the conference will have their registration fee waived. The schedule is filling up fast but we still have a few slots available.

Registration was available starting April 4, with early bird pricing through July 4. For more information or to register, please visit http://und.edu/academics/extended-learning/conference-services/immunization/. Hope to see you there!

To date we have the following speakers confirmed:

- **New Addition:** Dr. Wendy Sue Swanson (Seattle Children's Hospital) – Using social media to communicate with patients and What's New with Immunizations
- Kylie Hall (NDSU) - School immunization focus groups
- Dr. LJ Tan (Immunization Action Coalition) – Adult Immunizations and break-out sessions on using standing orders to improve access to immunizations
- Dr. John Lee (Sanford Sioux Falls) – Head and neck cancers associated with HPV
- Dr. Lon Kightlinger (South Dakota Department of Health) – Reviewing recent SD measles outbreak
- Christine Baze (Yellow Umbrella Project) – Cervical cancer survivor and motivational speaker

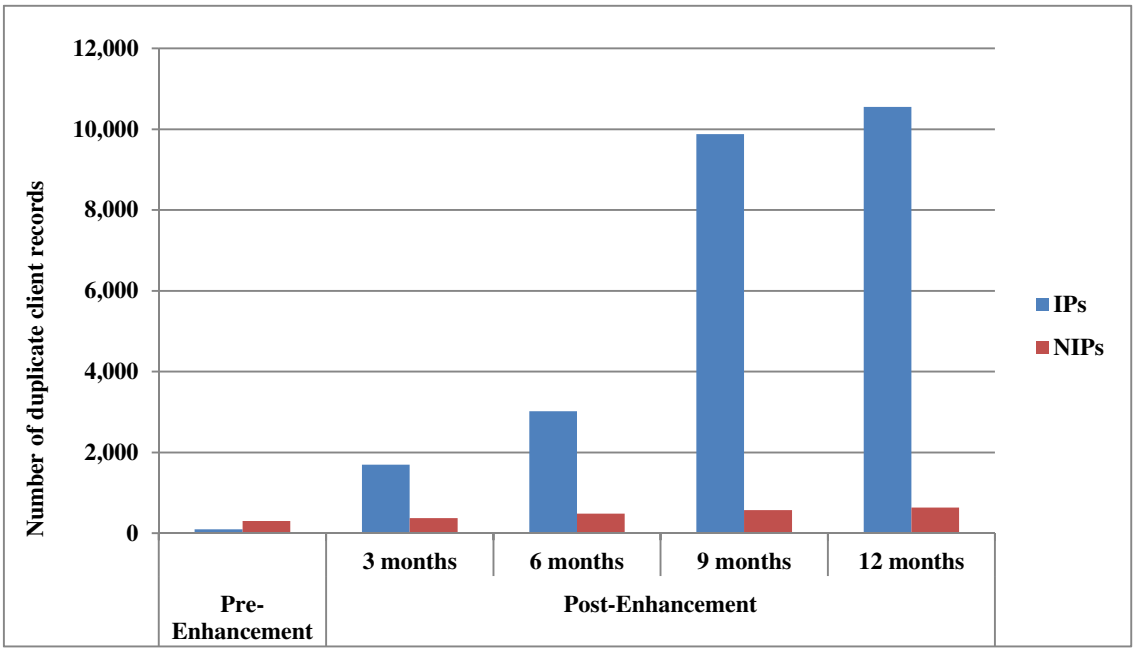
The Impact of EHR Interoperability on NDIIS Data Quality

In 2015, the NDDoH Immunization Program evaluated the impact of electronic health record (EHR) interoperability on the quality of immunization data in the North Dakota Immunization Information System (NDIIS). NDIIS doses administered data was evaluated for completeness of the patient and dose-level core data elements for records that belong to interoperable (IPs) and non-interoperable providers (NIPs). Data was compared at three months prior to EHR interoperability enhancement to data at three, six, nine and twelve months post-enhancement following the interoperability go live date of the state's major health systems. Doses administered per month and by age group, timeliness of vaccine entry and the number of duplicate clients added to the NDIIS was also be compared, in addition to, immunization rates for children 19 – 35 months of age and adolescents 11 – 18 years of age.

We found that doses administered to the 6–10 year, 11–18 year, 19–59 year and 60 years and older age groups by both IPs and NIPs remained fairly consistent from pre-enhancement to three, six, nine and twelve months post-enhancement. NIPs had a higher percentage of doses administered for all age groups with the exception of the 0–5 year age group. Pre-enhancement NIPs entered 53% of the doses in the NDIIS compared to 47% for IPs. Post-enhancement, IPs entered 53% of doses at three months, 55% at six months, 56% at nine and twelve months.

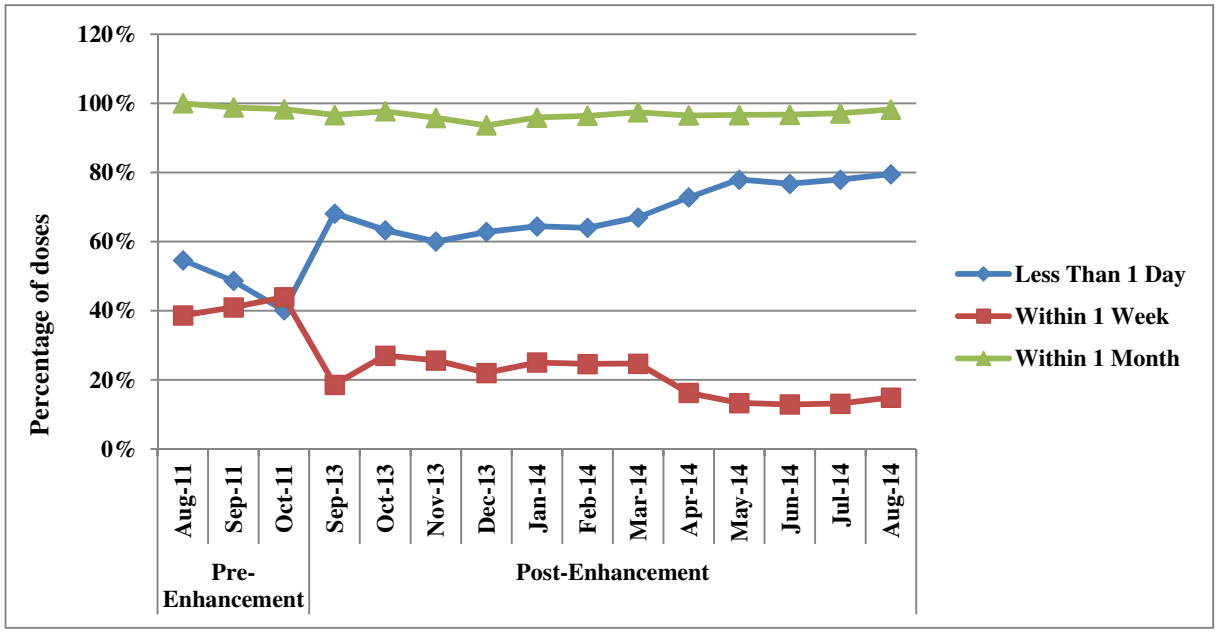
Looking at the timeliness of data entry, the overall percentage of doses entered into the NDIIS within one month of administration varied slightly (less than 2%) over the three months pre-enhancement and 4.6% over the twelve months post-enhancement. There were, however, some significant changes between the percentage of doses entered within one day and within one week. The percentage of doses entered within one day increased from 54.6% at the start of the pre-enhancement period to 79.5% at the end of the twelve months post-enhancement, while the doses entered within one week of administration decreased from 38.6% to 14.9% over the same time period (Figure 1).

Fig. 1: The overall timeliness of dose data entry by all providers in the NDIIS



Pre-enhancement, the number of duplicate client records created in the NDIIS by NIPs was more than three times the number created by IPs (300 vs. 94). Post-enhancement, the number of duplicate client records created by NIPs increased from 377 at three months to 637 at twelve months, whereas the number of duplicate client records created by IPs increased to 1,695 at three months post enhancement and continued to increase with 9,883 duplicates created at nine months and 10,552 at twelve months (Figure 2).

Fig. 2: Comparison of the number of duplicate client records added to the NDIIS by interoperable and non-interoperable providers



Of the 40 immunization information system (IIS) core data elements in the NDIIS, completeness for only three elements, middle name, county and phone number, were significantly (>=5%) higher for NIPs compared to IPs pre-enhancement. Completeness for only two data elements, sex and mother's maiden name, were significantly higher for IPs pre-enhancement. For all other data elements there was no significant difference in completeness between the interoperable versus NIPs. By twelve months post-enhancement, there were five data elements: middle name, phone number, vaccine manufacturer, lot number and expiration date, significantly higher for NIPs and completeness for mother's maiden name was significantly higher for IPs. Additionally, completeness for the sex field showed almost no difference between IPs and NIPs post-enhancement and the percentage difference in completeness for county was only 2% post-enhancement versus 5% pre-enhancementComparing immunization rates for infants and adolescents, IPs had higher rates both pre- and post-enhancement than NIPs for all vaccines and vaccine series assessed. The rate for the infant 4:3:1:3:3:1:4 series was 82% for IPs pre-enhancement and 77% for NIPs, for a difference of only 5% between the two groups. By twelve months post-enhancement, there was a difference of 12% with the IPs still having a higher percentage of their infants up-to-date with the complete series (70%) when compared to the infants of NIPs (58%).

The differences in the up-to-date rates for adolescent clients at IPs versus NIPs varied by vaccine and time period. For one dose of Tdap, the biggest difference was at twelve months post enhancement with a rate for IPs of 79% compared to 66% for NIPs; for one dose of MCV4 and two doses of varicella, the biggest differences were seen pre-enhancement with a MCV4 rate of 81% and a varicella rate of 50% for IPs compared to only 66% and 35% for NIPs. Rates for HPV and two doses of MCV4 had the smallest differences between

interoperable and NIPs with variations of 5% or less at each time interval.

After reviewing the results of the evaluation we can see that interoperability with provider EHRs has had an impact on NDIIS data quality. Timeliness of data entry has improved and overall doses administered have remained fairly consistent, as have the immunization rates for the providers assessed. There are more technical and non-technical interventions that will need to be accomplished by NDIIS staff and the vendor to help reduce the negative impact of duplicate record creation, as well as, data completeness.

Reduction in HPV Prevalence among Adolescent and Young Adult Females

Infection with HPV subtypes 6 and 11 are associated with genital and anal warts, and subtypes 16 and 18 are associated with an estimated 66% of cervical cancers in the United States. Vaccines licensed for the prevention of HPV infection include: HPV-4 (brand name Gardasil®), which was first licensed in 2006, followed by HPV-2 (brand name Cervarix®) in 2009, and HPV-9 (brand name Gardasil9®) in 2014. HPV-2 protects against viral types 16 and 18; HPV-4 against types 6, 11, 16 and 18, and HPV-9 protects against types 6, 11, 16, 18, 31, 33, 45, 52 and 58.

In *Prevalence of HPV after Introduction of the Vaccination Program in the United States,* published in the February 2016 issue of *PEDIATRICS*, Markowitz, Liu *et al.* report a reduction of prevalence of HPV DNA from the four types of HPV (4vHPV) targeted in HPV-4, based on cervicovaginal specimens from adolescent and young adult females in the years following the licensing of the first and second HPV vaccines. The study analyzed data from the National Health and Nutrition Examination Survey (NHANES), an ongoing series of cross-sectional surveys conducted by the National Center for Health Statistics, where participants undergo a household interview followed by a physical examination and sample collection. This study compared the most recent four NHANES study data years available (2009-2012) with the pre-HPV vaccine years (2003-2006). Similar previous studies have focused on younger adolescents, and this new information provides additional insight into HPV infection rates among young adults.

Results from the study showed that infection with 4vHPV among 14-24 year old females has decreased during the years following licensing of HPV vaccines, when compared to preceding years. Across the timeframes studied, the prevalence of 4vHPV types declined from 11.5 percent to 4.3 percent among females ages 14 to 19 years. Reduction also occurred, from 18.5 percent to 12.1 percent among females ages 20 to 24 years.

HPV prevalence among sexually active females ages 14 to 24 years, according to vaccination history, was also studied. It was found that 4vHPV prevalence stood at 16.9 percent for unvaccinated females, versus 2.1 percent for those who have been vaccinated. Vaccination was considered as a participant having received greater than or equal to one dose of an HPV vaccine according to self or parental report.

Overall, within six years of HPV vaccine introduction, the study found that 4vHPV prevalence among females ages 14-19 years decreased by 64 percent, and prevalence among females ages 20-24 years decreased by 34 percent.

As this study found high vaccine effectiveness (89 percent) when comparing years preceding vaccine availability with those after, and HPV infection prevalence was also found to have remained stable, the results confirm that the best protection for adolescents and young adults against certain types of disease causing HPV infection is to be vaccinated.

NDIIS Team Presents at National Conference

The American Immunization Registry Association (AIRA) national meeting took place this April in Seattle, Washington. With this year's theme of "Cultivating Community, Establishing Standards, Supporting Implementation", the conference was a forum for immunization information systems to collaborate and learn from diverse work that is going on across the nation. The North Dakota Immunization Information System (NDIIS) team participated and presented at this year's meeting on several ongoing projects and programs within our own state.

Interoperability with Non-Traditional Providers and Unconventional Systems

Mary Woinarowicz, NDIIS Manager and AIRA Board President, shared information on interoperability work with non-traditional immunization providers and unconventional systems. Currently, the NDIIS is interoperable with 245 individual providers, representing more than 60 percent of all immunizations reported to the NDIIS. Two hundred and six of these connections are real time and fully bi-directional, and eight are real-time, but only submit administered and historical immunizations. The NDIIS team is now also able to work with more non-traditional immunization providers and other data systems. The Thrifty White pharmacy chain is now securely submitting flat file immunization data, and the team is in the process of establishing a one-way real time connection with the CVS pharmacies in North Dakota. Additionally, we are working with in-patient hospitals, long term care facilities, and local public health units.

In addition to connections with electronic medical records systems, the NDIIS team completed a query-response connection between the NDIIS and our MAVEN disease surveillance system in December 2015. As other programs in our division use the NDIIS to look up immunization histories for cases of vaccine preventable diseases reported to the NDDoH, this connection reduces the amount of staff time spent manually searching for an immunization history and extracting that data into MAVEN. This connection is currently used for investigation of vaccine-preventable diseases, but we hope to expand the cases pulling in immunization data to asses HPV vaccination status for reported cases of sexually transmitted diseases, and to assess if reported HIV cases have received all routinely recommended vaccines.

Project Completion Improvements

Mary also presented on North Dakota's improvements on the success and timeliness of our IIS project completion. Prior to the changes in our process, the NDIIS development team was responsible for the design and development of NDIIS enhancements and new functionality. The NDDoH Immunization Program wouldn't see the changes or have input on the work until it was time for user acceptance testing (UAT). This often led to long delays in the project and major changes that needed to be made. In 2014, our entire development process was changed. We now have a standard template for formal business requirements that are

written, with input from key stakeholders, before any development work is done. The requirements are reviewed by the whole team together so that the final expectations and deliverables are clearly outlined. Following the implementation of this new process, two new major pieces of NDIIS functionality, pandemic preparedness reporting, and vaccine returns and wastages have been completed on time and within budget.

Outreach and Education Program

Dominick Fitzsimmons, NDIIS Coordinator, presented on the ongoing outreach program to long term care facilities and family planning providers, as well as to pharmacies and the formation of outreach partnerships across the state. Between 2014 and 2017, 75 long term care and 23 family planning sites have been targeted to receive a combined outreach, education and NDIIS user training for their staff. The goal of the outreach program is to continue to educate and recruit providers of routinely recommended adult and HPV vaccines, with a plan to facilitate an increase in reporting to the NDIIS and an increase in up-to-date rates of these immunizations in North Dakota. This CDC Sentinel Site grant funded work also continues to be a focus for improving electronic immunization data connections and sharing with non-traditional immunization providers.

Calendar of Upcoming Immunization Events

May

11th - Immunization Lunch & Learn
11th & 12th – Wyoming State Immunization Conference, Casper, WY
25th-27th – National Conference on Immunization Coalitions & Partnerships, Indianapolis, IN

June

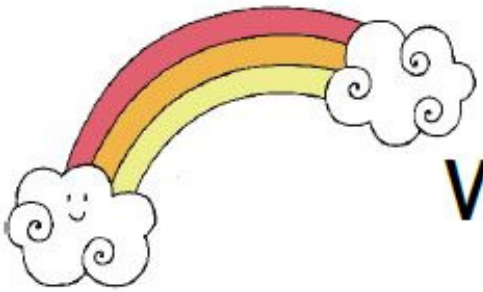
8th – Immunization Lunch & Learn
22nd & 23rd – ACIP Meeting, Atlanta, GA

July

13th – Immunization Lunch & Learn
19th-21st – NACCHO Annual Meeting, Phoenix, AZ

August

3rd & 4th – North Dakota Immunization Conference, Bismarck, ND



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melting puddle rainbow raindrops

seeds sunshine tulips umbrella

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